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EMPLOYMENT OF URETHAN AND OF
AMYL HYDRATE IN INSOMNIA.

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OWING to the demand for some efficient and safe internal remedy in insomnia, the number of hypnotics is constantly assuming larger proportions. We shall enter into no discussion of the merits of some of these. The disadvantages of opium, and the good and bad points of the bromides and of Cannabis Indica, are well understood. Hyoscine has undoubted hypnotic power, as common experience proves; but it can by no means be placed in the list of *pure* hypnotics, and its use is often accompanied by very unpleasant secondary effects; besides being not devoid of danger in dose sufficient to produce sleep. Chloral, though perhaps after all more

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sure and powerful than any of its cogeners, often has great disadvantages attending its employment. Its hypnotic action is very commonly preceded by delirium, and sometimes this is the only result of its administration ; or there may be no effect at all observed. Moreover, cases have been reported by different observers where a single and even small dose has proved fatal ; and on account of its depressing action on the heart, respiration, and nervous system generally, it cannot be called a pure hypnotic. Then, too, there exists the danger of the *chloral habit* and of chronic chloral poisoning, if the employment of the drug be long continued. Ward (quoted by T. M. Lloyd, *Therap. Gazette*, February, 1888) has seen "no untoward result of any nature whatever" follow its use during an experience of fifteen years among the insane, and doubts the existence of such a thing as the "chloral habit." There are others who are inclined to adopt the same view ; but those who are sceptical as to the deleterious effect which may follow the continued administration of chloral may find a mass of convincing evidence in the able article by Rehm, in the *Archiv für Psychiatrie*, 1886, Bd. xvii. 36. Although, then, chloral is an invaluable remedy, whose place in some cases cannot be taken by any other drug, the possible dangers attending its use, particularly in a condition of cardiac weakness, render it advisable first to make trial of some substitute for it, if such a substance can be found.

Paraldehyde was recommended by Cervello, in 1882, and has since been used extensively as a hypnotic. It does not affect the heart or respiration in

any ordinary dose, and may be given with impunity even when cardiac lesions exist. It is not, however, so powerful as chlôral, and possesses certain serious disadvantages. Its dose, mainly, is large, and it has a very unpleasant taste, which remains in the mouth long after the medicine has been swallowed. It may cause vomiting when the stomach is irritable, and in any case it is apt to produce unpleasant eructations, while its disagreeable odor remains on the breath sometimes for days. It is also said to cause great excitement at times, and a recent writer reports two cases where its continued use in large doses induced symptoms resembling those of chronic alcoholism ; but this must be a very unusual occurrence. Sommer (quoted in *Therap. Gazette*, August, 1886) reports a case of scarlet injection of the skin, twice occurring after the ingestion of the drug ; and Eickholdt (*Ibid.*) has observed cerebral congestion and vasoparalytic symptoms after its prolonged use.

Various other hypnotics have been more recently proposed, such as urethan, amyl hydrate, hypnone, and methylal.

The first two mentioned are receiving the most attention, and we desire here to report our experience with them in a number of cases.

URETHAN.

Urethan, or ethyl carbamide, was first used by Schmiedeberg on animals, and by Jolly on men. It is an ethylic ether of carbaminic acid, with the chemical formula $\text{NH}_2\text{CO}_2\text{C}_2\text{H}_5$, and consists of white crystals freely soluble in water, and with no odor and but little taste. It was brought into promi-

nence in 1885, by von Jaksch (*Wiener med. Blatter*, 1885, Nos. 33 and 34), who administered it 110 times in 20 cases. In doses of 7 grains it was an uncertain hypnotic, but when 30 grains were employed he never failed to obtain the desired effect. The amount usually given was 15 grains, which was found sufficient to produce a natural sleep. The drug appeared to be entirely harmless in any medicinal dose, and produced no unpleasant after-effects.

Since von Jaksch's publication urethan has been tried quite extensively. Among the published reports of it may be noticed that of Kräpelin (*Neurolog. Centralbl.*, March 1, 1886), who gave it in doses of 15-45 grains 200 times in 34 cases. He considers it a pure hypnotic, but far inferior to paraldehyde if there has been much excitement, and worthless in delirium tremens. Usually more than 15 grains is required in any case.

Eloy (*L'Union Méd.*, Nos. 36 and 37, 1886) thinks it a powerful agent in doses of 30-60 grains. He has used it in 90 cases.

Scharschmidt (*Therap. Monatsh.*, Sept. 1887) considers it useless in doses of less than 75 grains.

Savage (*Practitioner*, 33, 1887) administered it in doses of 60-120 grains, and says that sleep often comes in one-quarter of an hour. He does not, however, appear to consider the drug at all reliable.

Myrtle (*Brit. Med. Journ.*, February 20, 1886) has seen its good effects in more than 50 cases of insomnia and restlessness from various causes.

Sticker (*Deutsch. med. Wochensch.*, No. 48, 1885) has also obtained favorable results with it, and says the dose may be increased to 60 grains without

danger. He further states that too large a dose will sometimes have no effect, when a smaller one will bring sleep.

Bigelow (*Amer. Journ. of Obstet.*, 708, 1887) writes that 15-20 grains give a long, pleasant sleep, and claims that the drug is also an analgesic.

Langovoi (quoted in *Therap. Gazette*, 1887, p. 337) states that the drug is not a powerful hypnotic, and in some cases is ineffectual. It is unreliable but harmless. It may be useful in nervous insomnia and in sleeplessness in the acute fevers.

Ughi (quoted in *Wien. med. Wochensch.*, August 27, 1887) says that doses of even 30-60 grains are inconstant in their hypnotic effects.

Andrews (*Weekly Med. Rev.*, July 30, 1887) has used it in doses of 30 grains in 18 cases of insanity of different forms. About 80 doses in all were given. It produced sleep in about an hour, which lasted through the night. He considers that it has marked hypnotic power, and that it is accompanied by no unpleasant secondary effects.

Sansom (*Valvular Diseases of the Heart*, 1886, 102) considers urethan the most satisfactory agent he has employed as a simple hypnotic in heart diseases. He has found 15 to 20 grains at bedtime induce calm, natural sleep, lasting 5 hours or more, and producing no adverse symptoms.

Carriell (*Therap. Gaz.*, 1888, 101) says of its use in the insane, that it has not produced sleep in 30 grain doses.

Finally, Rottenbiller (*Centralbl. f. Nervenkrankh.*, 1886, No. 10) has given urethan hypodermatically 240 times in 14 cases of mental disorder, and found

it ineffectual in amounts less than 30 to 60 grains, while it is not well borne in quantities larger than this. Its action is not very certain. In 8 cases it produced tranquil sleep for 6 to 8 hours, and in 4 others for only 2 to 4 hours. In 1 instance it failed utterly, and paraldehyde was given with success.

In the latter part of 1886 one of us began some trials of the hypnotic power of urethan, and continued them at intervals up to the present time. These cases have now reached 19, and the number of single administrations, certainly over 60. Briefly reported, the cases are as follows:

CASE I.—M., male. Phthisis. Wakeful at night. On October 11th given 15 grains urethan at 9 P.M. Slept from 10.45 to 12. Soon slept again until 4.

CASE II.—H. McN., aged forty, male. Severe bronchitis. Sleeps badly on account of restlessness and cough. Given 15 grains urethan at 9 P.M., on October 8th. Slept better than usual. 10th. 15 grains at 9 last night with no effect. Repeated at 10.20. Soon slept uninterruptedly until 2.30; then with frequent wakings. For 5 nights more a dose of 15 grains was given at about 9, but with no marked result. The patient was unable to say that he slept better than when none was taken.

CASE III.—McG., male, aged thirty. Incipient tuberculosis. Troubled by insomnia, for which morphia has been given. 15 grains urethan administered on night of October 9th, and on succeeding night at 9 P.M. Slept well both times until morning. The patient, however, had slept well on the night of the 8th without any medicine.

CASE IV.—John L., aged thirty-two. Pyopneumothorax. Often sleeps badly. 15 grains urethan at about 9 P.M. every night for 5 nights, beginning

October 10th. Slept well through the nights. Urethan then stopped, and patient seemed to sleep just as well.

CASE V.—G., male. Nephritis. Has difficulty in going to sleep; often lies awake until morning. October 9th. 15 grains urethan at 9, no effect. Second dose at 10.30 and slept soon after until 3. 10th. Slept well without medicine, but did not fall asleep so soon.

CASE VI.—T., male. Nephritis; great dyspnœa; orthopnœa. Sleeps but little, and morphia and chloral compound procures but a few hours rest. October 11th. Given 15 grains urethan at 9 last night, and again at 10.50. Slept shortly after until 12.

CASE VII.—Mr. S., aged seventy-two. Emphysema; great dyspnœa. October 14th. 2 doses of urethan, each 15 grains, 2 to 3 hours apart. Thinks it kept him awake. On several other occasions took the drug, sometimes using as much as 60 grains during the night. It sometimes caused nausea, seemed to increase the dyspnœa, and never exercised any hypnotic action.

CASE VIII.—Mrs. C., aged sixty-five. Hemiplegia. Usually very restless at night, and sleeps but little. October 14th. Gave 15 grains urethan at 10. In 20 minutes she was sleeping quietly until 3 A. M. On the next night slept in less than an hour after a similar dose.

CASE IX.—Lizzie P., aged forty-six. Disseminated sclerosis. Always sleeps very poorly. 15 grains urethan at 10 on night of October 13th, produced no effect at all, except some nausea.

CASE X.—Mrs. D., aged sixty-six. Intra-capsular fracture of femur. Tendency to insomnia. October 14th, 15 grains urethan at 10 P. M., had no hypnotic action.

CASE XI.—Mrs. R., aged sixty-nine. Hemiplegia. Usually sleeps very little. October 16th. Took 15 grains urethan at 10 last night. Slept soon and soundly. Woke at 3, but soon slept again. Two days later dose repeated at same hour with equally good results.

CASE XII.—Jacob W., aged eighty-one. Old hernia. Restless at night and sleeps badly. 8 to 10 grains bromide of potash usually helped somewhat. 15 grains urethan twice on the night of October 16th were entirely without hypnotic effect.

CASE XIII.—Dr. B., aged fifty. Herpes zoster. November 12th. Urethan 15 grains b. d. November 13th, 15 grains t. d. Scarcely any effect, while $\frac{1}{8}$ th grain morphia gave fair hypnotic result.

CASE XIV.—Sadie T., aged twenty-three. Friedrich's ataxia. Usually sleeps well. For several nights has been tossing, restless, "raving." Gave 15 grains urethan on night of November 26th. Little effect. Patient said she would drop asleep and at once wake again.

CASE XV.—Mrs. O., aged seventy. Ulcerative keratitis. Sleep has been restless for some time. 15 grains urethan on night of November 1st had very little effect. Bromide was of little good in this case unless given with morphia.

CASE XVI.—K., aged forty-five. Fracture of ribs. Urethan in doses of 10 or even 20 grains gave no relief to great sleeplessness. Morphia acted like a charm.

CASE XVII.—Miss N., aged forty. Rheumatoid arthritis. Very restless at night without much actual pain. 15 grains urethan repeated in a few hours and tried on two successive nights had no appreciable effect.

CASE XVIII.—Mary S., aged twenty-five. Contraction of lung after pleurisy. Phthisis? Has

dyspnoea; troublesome cough; has been sleeping very badly. Took 15 grains urethan at 10 on night of November 10th. Asleep in an hour. Slept an hour. Repeated the dose at 12. Slept soon after, but restlessly. Thinks she slept but little better than usual.

CASE XIX.—Walter S., aged thirty-five. Typhoid fever, third week. Very wakeful for some nights. March 7th. 20 grains urethan at 1 A. M. No effect. 30 grains at 4 A. M. Slept after about $\frac{1}{2}$ hour for 2 to 3 hours. 10th. 30 grains urethan at 11 P. M. Slept after about $\frac{1}{2}$ hour all night; but had also shown disposition to sleep during the day. 14th. 30 grains urethan given in the morning were at once vomited.

To sum up, we see that out of 19 cases there have been but 2 (VIII. and XI.) where the hypnotic action was really satisfactory. In a few others the effect was slight, or it was doubtful whether the sleep could be attributed to the action of the medicine, and would not probably have been obtained without it. In 3 cases (VII., IX., XIX.) there were unpleasant secondary effects, though in the last case the stomach was irritable to other drugs usually well borne. It may be objected that the amount generally employed (15 grains) was too small. This may possibly be true, though it is that usually recommended by the earlier writers, and which we therefore adopted. Moreover, the dose was frequently repeated in 2 hours or less, and in one case (VII.) as much as 60 grains were given during the night without hypnotic effect. It is also true that a few cases constituted too severe a test for a simple hypnotic, as pain or persistent cough was present. We must,

nevertheless, conclude that, as far as our experience goes, urethan is an uncertain and unreliable hypnotic, though in large doses it will at times prove useful, and has advantages which at least recommend it for trial in some cases.

AMYL HYDRATE.

Amyl hydrate or dimethylethylcarbinol, which promises to become a valuable therapeutic agent, was first studied by von Mering (*Therap. Monatsh.*, July, 1887). It is one of the tertiary alcohols, its formula being $(\text{CH}_3)_2\text{C}(\text{C}_2\text{H}_5)\text{OH}$. It is a colorless fluid soluble in 8 parts of water, and with a smell somewhat like camphor and peppermint. The taste is pungent and unpleasant, though less disagreeable than that of paraldehyde; and the medicine leaves no odor upon the breath. V. Mering administered it to 60 cases of insomnia from various causes, and in only 4 did it prove inefficacious. 2 cases of whooping-cough were relieved by it. The total number of doses given was 350, of 45 to 75 minims by the mouth or by rectum. Its principal action is on the cerebrum, and it is unreliable in producing sleep if pain be present. The author claims that it does not cause headache, nausea, or disturbance of digestion. It may be used with impunity in heart disease, since even with doses sufficient to produce profound narcosis in animals scarcely any effect on the circulation could be perceived. On this account it is greatly to be preferred to chloral; while its smaller dose and less disagreeable taste render it superior to paraldehyde. As regards its relative strength, V. Mering

calculates that 1 part of chloral equals 2 of amyl-hydrate and 3 of paraldehyde.

Scharschmidt (*Therap. Monatsh.*, September, 1887) gives the drug by enema or by the mouth, freshly mixed with red wine or sugar, or in brandy. He gave it to 80 cases of mental disorders, with 1051 single administrations. The results were good in 869, medium in 138, and there was no effect in 44. The average dose was 30 to 60 minims. By comparative tests he found it superior to chloral, paraldehyde, and urethan, and considers it 3 times as strong as paraldehyde.

Lehmann (*Therap. Monatsh.*, December, 1887) reports 149 observations in 26 insane patients. The dose employed was 15 to 75 minims, and in 1 case 90 minims. The hypnotic results were good in 83.2 per cent. of cases. In mania large doses were required. Paralysis of the insane was benefited, but the insomnia of melancholia was aided to a less degree. It is a pure hypnotic, sleep lasting 6 to 8 hours. Slight nausea and digestive disturbance were noted in some cases. The author considers it more efficient and less disagreeable than paraldehyde.

Avellis (*Deutsch. med. Wochenschr.*, 1888, No. 1) has treated over 40 cases with more than 300 administrations of amyl-hydrate. It may be given either by enema or by the mouth. Sleep comes on after 15 to 45 minutes, though sometimes there is no effect at all. He considers it, on the whole, a reliable hypnotic, if a sufficient amount be employed, and there are usually no unpleasant secondary effects. Nevertheless, in 1 instance a dose of 37 grains produced a condition like drunkenness in a hysterical

woman; and another patient, after the same quantity at 1 A. M., felt as though under the influence of a hypnotic the next day. The medicine rather diminishes the cough of phthisis, could be used with safety in heart disease, and was especially valuable in icteric itching. The author greatly prefers it to chloral in all affections of the circulatory apparatus. Where the stomach is irritable it should be given per anum.

Mason (*Boston Medical and Surgical Journal*, February 16, 1888) has used it successfully in a number of cases of marked insomnia. There were no ill effects at all observed, though mild intoxication occurred in a few instances. Its action appeared better than that of either paraldehyde or of urethan; and in 1 restless typhoid patient it produced a good night's sleep, when opium, chloral, urethan, and the bromides had no effect.

We have been unable to find any other literature on the use of amyl-hydrate. For the past 3 months we have been testing the virtues of the drug, and are convinced that it is a valuable hypnotic agent. We have given it in 18 cases with 85 administrations. The notes of these are in brief as follows:

CASE I.—Carrie D., aged forty-five. Opium habit. Been resting very badly; going as long as 2 days without any sleep. Has been taking bromide of potash, chloral, hyoscine, Cannabis Indica, and paraldehyde, singly or combined. She often required the following formula to produce sleep: Chloral, grs. xv; potass. bromid., grs. xl; paraldehyde, grs. lx; hyoscine, gr. $\frac{1}{6}$. January 10th. 40 minims of amyl hydrate were given at 9 P. M.; fol-

lowed in the course of 15 minutes by a slight, happy, singing delirium. After 2 or 3 hours this gave place to quiet sleep lasting the rest of the night. The patient remarked in the morning that she had "not spent such a happy night for many a day." 11th. 25 minims given at 9 P. M. Asleep in 10 minutes, and waked but once during the night. 12th. 25 minims at 9. Same result. 13th. 40 minims at 2 A. M. Slept the balance of the night. The drug was given every night up to February 1st, with equally good results, though the dose had to be increased to 1 drachm. The patient then slept without drugs. On March 24th it was given in capsules and nicely borne.

CASE II.—William N., aged thirty-five. Alcoholic delirium; sixth attack. Very delirious, and could be kept only partially quiet by large doses of hyoscine, bromide, and chloral; but these were stopped as their depressing action was feared. January 10th. Very delirious; screaming and jumping out of bed. 20 minims of hydrate of amyl were given, and the delirium ceased almost immediately, and quiet sleep for 2 hours followed in 10 minutes. Later he was quiet and rational, and slept intermittently. After this date he seemed for a time so much better that amyl was not needed, but later began to show increased signs of mental derangement, and became very maniacal. Large doses of morphia and the bromides were administered with but very little effect. 1 drachm amyl hydrate given, but only quieted him partially.

CASE III.—Robert D., aged fifty-three. Dementia. Constantly talking, mumbling night and day; very often noisy. Has taken morphia, the bromides, chloral, hyoscine, paraldehyde, singly and combined in different ways. Not much effect except from very large doses of bromides, but the depressant

action feared. January 15th. 30 minims of amyl hydrate at 9 P. M. Asleep in $\frac{1}{2}$ hour, and slept all night. 16th. Been very talkative during the day. 30 minims at 9. Repeated the dose at 11. Sleep in 15 minutes, which lasted 4 hours; after this did not sleep, but remained very quiet. 17th. 30 minims at 9. Asleep at 11, and slept all night. 18th. 30 minims at 9.50. Did not sleep. 19th. 30 minims at 9.50. Slept very soon until 12. Then awoke and bromides given; after which slept until 4.

CASE IV.—Annie M., aged twenty-three. Rheumatoid arthritis. Occasional exacerbations with rise of temperature, insomnia, and considerable pain. The bromides in moderate doses fail to act. January 28th. 30 minims amyl hydrate at 9 P. M., followed by quiet sleep in 15 minutes, lasting the entire night in spite of the pain. 30th. 40 minims at 9. Sleep in 15 minutes, lasting all night. The drug was used on 4 other occasions with equally good results.

CASE V.—Harry J., aged twenty-five. Advanced phthisis; hectic, great restlessness and excitement at night. January 24th. 30 minims amyl given at 9 P. M., producing, in the words of the patient, "the first quiet sleep I have had for a week." The drug used twice afterward with same effect.

CASE VI.—Henry B., aged seventeen. Typhoid fever, with phlebitis. Great wakefulness. January 25th. 40 minims amyl hydrate at 10. Sound and continued sleep in 15 minutes. On the next 2 nights a similar dose produced each time sound sleep in 15 to 20 minutes.

CASE VII.—Mendenhall B., aged fifty-five. Carcinoma ventriculi. No pain worthy of note, but great insomnia lasting all night. January 28th. 40 minims hydrate of amyl at 9 failed to act. Dose repeated at 10, followed after some time by not very sound sleep. 30th. 40 minims were given at 9. Asleep

in $\frac{1}{2}$ hour, and slept until 3. 31st. Same result. February 10th. 40 minims at 9, and again at 10. Slept from 11 until 3. 14th. 40 minims at 9; repeated at 10, but slept only 3 hours. 12th. Slept all night after 40 minims at 9.

CASE VIII.—William D., aged twenty-six. Typhlitis? Was not able to sleep for 3 days before admission to hospital. Pain often severe. January 20th. 25 minims of amyl hydrate at 9 P. M., and again at 9.30, but did not sleep at all. 21st. 40 minims at 9, and again at 11. Slept until 2. After that only short naps. 22d. Pain severe. Had 20 grains bromides and 1 drachm of paraldehyde at 10; and $\frac{1}{6}$ grain morphia at 1.30 A. M., but did not sleep at all. 23d. 40 minims amyl at 9. Slept better than on any preceding night, but the pain was less. The same dose was given on 6 other occasions with favorable results.

CASE IX.—Mrs. G., aged twenty-six. Phthisis. Sleep is very poor and cough annoying. February 1st. 40 minims of amyl given at 9 P. M., with very little effect. On 3 other occasions the results were also negative; the constant cough seeming to prevent the action of the drug.

CASE X.—Owen McA., aged forty? Renal and cardiac disease. Dyspnœa; patient often has only a couple of hours sleep during the entire night. January 23d. 30 minims hydrate of amyl at 12.30. Slept all night except during two attacks of dyspnœa. On 8 consecutive nights beginning with February 11th, drachm doses of amyl procured sound sleep lasting all night except during occasional attacks of dyspnœa.

CASE XI.—Miss R., aged twenty-three. Psoriasis. Insomnia from anxiety. 40 minims of hydrate of amyl were given for 3 nights beginning with Feb-

ruary 9th. She slept all night, but later a placebo produced the same effect.

CASE XII.—William J., aged twenty-four Phthisis. 40 minims of amyl were given once, but he did not sleep on account of the cough.

CASE XIII.—W. C., aged fifty-two. Cancer of the intestine? Has not been sleeping without large doses of morphia. March 2d. 40 minims amyl hydrate at 9 P. M. The patient says he spent one of the happiest nights of his life, being quiet and free from pain, although he did not sleep. 3d. Same dose followed by good sound sleep in 15 minutes.

CASE XIV.—W. D., aged forty-five. Aortic regurgitation. Sleeping very little for three nights, and dreams whenever he is asleep. March 10th. The patient was sound asleep in 15 minutes after 40 minims amyl were taken.

CASE XV.—Charles C., aged twenty. Acute mania, with almost no sleep. Patient is exceedingly noisy. January 20. 25 minims hydrate of amyl given at 9. Slept until 4; and then remained quiet, although he did not sleep. 21st. 25 minims at 9, and dose repeated at 10. Slept all night.

CASE XVI.—Peter T., aged thirty-five. Heart disease. Suffers greatly from cardiac asthma. Wakeful. February 17th. 40 minims amyl at 9. Slept about 2 hours; then awakened with an attack of dyspnœa lasting 10 minutes; then slept until 6 A. M. 24th. 40 minims at 9 failed to act on account of intense dyspnœa. 28th. 40 minims at 9. Slept 2 hours; but after that dyspnœa became almost constant.

CASE XVII.—Walter S., aged thirty-five. Typhoid fever; third week. Exceedingly wakeful and longing to sleep. March 8th. 30 minims amyl hydrate last night at 9.15, but no effect. Did not sleep

until near morning. 9th. 40 minims last night at 9.15. Slept after about $\frac{1}{2}$ hour until 1; and again from 3 until 9 A.M., and feels greatly refreshed. 12th. 40 minims at 10, but the stomach had been very irritable, and vomited the medicine at once.

CASE XVIII.—Miss H., aged forty. Phthisis. Persistent coughing, not quieted by large doses of morphia, keeps her awake at night. March 19th. 40 minims amyl early in the night procured somewhat better sleep than usual; the patient coughing while asleep. Effect lasted but a few hours.

An analysis of these cases is hardly needed, as the exceedingly favorable results are evident. In only 2 cases were there any unpleasant effects; namely, in Case I., where a temporary delirium occurred with the first dose in a rather hysterical woman; and in Case XIX., where vomiting was produced, though the stomach of this patient was unusually irritable. The taste is often complained of, but we have succeeded in disguising it to some extent with liquorice, as v. Mering suggests.

We have also found it very satisfactory when given in gelatine capsules, each containing 20 minims. The ordinary capsule in two parts will answer nicely for this purpose, and will retain the drug without leaking. A full glass of water should be immediately swallowed after the capsule, in order to avoid offending a possibly irritable stomach. In most cases there is no danger of this occurring.

Our results show that amyl hydrate does not always succeed in producing sleep. Particularly is this the case when pain is present, or when there is

very troublesome cough. We believe it nevertheless to be a valuable hypnotic, more powerful than urethan or paraldehyde; and to be preferred to them; and always to be chosen in place of chloral to produce sleep, though it is not so strong as the latter drug.

